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ABSTRACT

This report describes Memory Enhancement Group workshops which have been conducted at the Senior Health and Peer Counseling Center in Santa Monica, California and gives basic data regarding outcomes of the workshops. It provides a model of memory as a three-step process of registration or becoming aware, consolidation, and retrieval. It presents an account of reversible causes of memory problems, both emotional (such as stress or depression) and physiological (such as infections or thyroid problems). The five techniques of attention and awareness, self-instruction, controlling the physical environment, tagging, and organization and chunking are described and demonstrated as appropriate techniques for short-term memory enhancement. Five techniques for long-term memory enhancement are also given: (1) survey, question, read, recite, review; (2) who, what, when where, why, and how; (3) mental rehearsal and repetition; (4) multiple cross-referencing for effective retrieval of information; and (5) imagery. Ways in which the program can be adapted for use in various settings are discussed. (NB)

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HOW TO CREATE AND CONDUCT A MEMORY ENHANCEMENT PROGRAM

by Genevieve R. Meyer, Ph.D., and Sharman Ober-Reynolds, R.N., M.N.,C.F.N.P.

Presented at the American Society on Aging Annual Meeting, March 19, 1988, San Diego, California

Since January 1985, fifteen Memory Enhancement Groups have been completed at the Senior Health and Peer Counseling Center in Santa Monica, CA.* The purposes of this intensive are: (1) to describe the workshops and give basic data regarding outcomes of the workshops; (2) to provide a model of the memory process which can be used in any program; (3) to give an account of the reversible causes of memory problems -- both emotional (such as stress or depression) and physiological (such as infections or thyroid problems); (4) to describe and demonstrate five techniques for short-term memory enhancement; (5) to describe five techniques appropriate for long term memory enhancement; and (6) to discuss how this program can be adapted for use in various settings.

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(1) Description of the Workshops, Population Served, and Results.

Each workshop meets weekly for 8 sessions (1 and 1/2 hours each) and covers techniques for both short and long-term memory enhancement. The size of the group has varied from 8 to 11 people,and a total of 143 clients have participated.

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The age range has been 55 to 90 with a median of 69 years. Women predominated (83%), but men have been participants in 11 of the 15 groups (representing 17% of the total). All participants have reported improvement in their memory functioning and 86% also reported additional benefits of improved self-esteem and greater confidence in their ability to cope.

These results come from the written evaluations completed at the end of the workshop. For the first 14 groups anecdotal evaluation forms were used, requesting clients to describe how and in what situations their memory functioning had improved and which techniques had proven most useful. In the fifteenth group, an evaluation form was introduced which permitted PRE and POST measures on frequency of memory problems and also allowed for anecdotal comments. (See Hand-Outs 1, 2 and 3 for the Evaluation Forms and for a Summary Report showing which test of statistical significance is appropriate for small samples with data at the ordinal level of measurement). For group number #15, significant improvement was demonstrated at the .001 level (one-tailed test).

(2) A Model of Memory as a Three-Step Process. (SEE NEXT PAGE FOR OUTLINE DIAGRAM OF THE MODEL.)

Having a "good memory", or using your memory well is like making good use of the filing system in your head. When you FORGET, it usually means you are not using your filing system (memory) as effeciently as you could.

Step 1: Registration or Becoming Aware of what you want to remember is like taking out a blank file folder.

A MODEL OF THE MEMORY PROCESS

STEPS IN MEMORY PROCESS	GUIDELINES FOR EFFICIENT REMEMBERING
1) Awareness and Registration →	1) Have a mental set, or INTENTION, to remember accurately: (AWARENESS).
2) Consolidation →	2) REACT ACTIVELY to the experience: Look, Listen, Talk, Think About It At The Time it occurs and Refresh Your Memory of It At Strategic Times (Mental Rehearsal and Repetition.)
3) Retrieval →	3) Keep Your Thoughts on The Meanings of what you intentionally store away, and use multiple cross-referencing for faster retrieval.

Step 2: Consolidation means actively putting the material you wish to remember into the file folder.

Step 3: Retrieval concerns filing away the folder in your memory in such a way that you can recall or find it easily.

For example, suppose you cannot remember the name of someone you met last week, it may be that you never registered it in the first place (Step 1) because you were not fully aware and did not really hear the name when you were introduced. Or, you may not have filed it away (Step 2 -Consolidation) in such a way that you can easily find or remember it when you wish (Step 3 - Retrieval).

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(3) Reversible Causes of Memory Problems

(A) EMOTIONAL FACTORS: Effects of Stress and Emotions.

When we are under too much STRESS, we do not function as well -- and this includes the memory process (especially Steps 1 and 3). Our energies become scattered, and we do not clearly focus on what we need to do. For example, when you are in a hurry to meet someone, and you lay down your house keys while you get your coat, and then cannot find the keys when you are ready to leave, you probably were NOT AWARE OR PAYING ATTENTION when you set them down. STRESS INTERFERED, in Step 1. Or, suppose you went to your doctor's office and later realized you forgot to ask all the questions you had on your mind. STRESS INTERFERED, (Step 3 - Retrieval). Of course, having a list with you, prepared earlier when you were more centered and unstressed, would have solved the problem.

Retrieval problems can be caused by emotional factors. Many retrieval problems are temporary. They don't mean that you are losing your memory. A partial list of the kinds of stressful emotions that can momentarily affect our recall includes: Anxiety, Bereavement, Confusion, Depression, Embarrassment, Fear and Guilt. You can probably continue through the alphabet and add many more to the list.

Not all emotional states are stressful. For example, moderate excitement or anticipation can enhance your learning and later recall. Also a very strong emotion can serve to etch an event deeply in your memory. (Can you remember where you were or what you were doing when you first learned of President J. F. Kennedy's assassination?)

To reduce the stressful emotions or indeed any type of stress that can cloud your memory functioning, RELAXATION TECHNIQUES are very helpful. Taking a few deep breaths and letting go of muscle tension is one way to lower your stress level. Relaxation Tapes can also be very useful.

Depression is another psychological condition that usually interferes with efective memory functioning. However, after the depression is treated, memory functioning can return to normal.

(B) PHYSIOLOCIAL FACTORS:

While normal aging does not cause memory problems, about 5% of those over 65 and close to 20% of those over 75 living in the community do suffer from mild to severe intellectual impairment (dementia) accordin to Kane, Ouslander, and ABrass (1984).

Dementia means a loss or impairment of mental powers. Symptoms may include forgetfulness, confusion, personality changes and possible apathy, withdrawal, irritability, and disorientation.

Dementia in the elderly can be placed in four broad categories: (See Kane, et al, 1984.)

Alzheimer's disease	approximately 50%
Multi-infarct dementia	approximately 20%
Other disorders (mainly neurological)	approximately 10%
Reversible or partially reversible dementia	approximately 20-30%

Multi-infarct dementia and Alzheimer's disease are the two most common incurable forms of mental impairment in old age. In Alzheimer's disease, changes in the nerve cells of the outer layer of the brain result in the death of a large number of brain cells. Multi-infarct dementia is caused by a series of minor strokes that result in widespread death of brain tissue.

The important point here is the fact there are over 100 reversible conditions that may mimic irreversible disorders. A mnemonic has been devised to help in identifying many of the potentially reversible causes of dementia:

D	drugs
E	emotional disorders (discussed in 3 A above)
M	metabolic or endocrine disorders
E	eye and ear dysfunctions
N	nutritional deficiencies
T	tumor & trauma
I	infections

A arteriosclerotic complications (i.e., myocardial infarctions, heart failure).

Add to this list such recognizable factors as inactivity, alcohol, and lung disease, and the need for a good health examination becomes clear. Since some 20-30% of "seeming" dementias are reversible or partially reversible, chronic forgetfulness in any older adult obviously deserves the most comprehensive health evalution that is available.

(4) Five Techniques for Short-Term Memory Enhancement.

A. ATTENTION AND AWARENESS: Some of the diffficulty people report with "poor memories" is not really a matter of forgetting, but simply of not paying attention at the time. If you want to remember something, you need to make sure that you are fully aware and that you "get it" in the first place. While it is possible to learn some things that you are not paying attention to, and WANT to learn, you can make paying attention a more active process by using as many of your senses as possible. The idea is to react ACTIVELY to an experience: look, listen, talk, think about it at the time it occurs. For example, with names, be aware and pay attention to "really get the name" when you are introduced. (Step 1) Then, make sure to repeat the name by actively using it in conversation. (Step 2, Consolidation). Mental rehearsal and repitition also help in Step 2.

B. SELF-INSTRUCTION: Do you forget where you left your glasses or why you came into THIS ROOM? One way of helping yourself to

pay attention is called self-instruction. As you put your glasses on the kitchen table, say to yourself: "I am putting my glasses on the kitchen table". When you decide to go into the kitchen, say to yourself "I am going into the kitchen to...(whatever you wanted to do)". At times, almost all of us have worried whether we have left the door unlocked or forgotten to set the alarm. This problem can be helped. As you do the thing, verbalize to yourself that you are doing it (e.g."I am locking the door").

C. CONTROLLING YOUR PHYSICAL ENVIRONMENT: This is another way to help yourself pay more attention and avoid forgetting things. Some things force themselves upon our attention because of their particular characteristics (example: advertising). This principle can be used to help you to remember things. Let's say that you wanted to remember to bring some clothes to the cleaners. One way to remember to do it is to lay out the clothes where you cannot help but see them frequently. Another example could be medication you need to take in the morning. You could lay it out the night before on your breakfast table, so you cannot fail to see it and be reminded to take it in the morning.

D. TAGGING: Used with Self-Instruction, this is very helpful in "Away-from-Home" situations. For example, when you park your car in a lot or on the street, find a "TAG" (e.g. a store name near the car or the color and # of aisle where you parked). Then use S.I. to imprint the "TAG" in your memory. This will aid you in locating your car.

E. ORGANIZATION AND CHUNKING: If you can't find some file or record in a file cabinet, what might be the cause of this problem? It is often because the file or record was not put in the cabinet in such a way as to be easy to find. Many memory problems have a similar cause. Your ability to remember information is influenced by how you recorded or stored that information. Keeping your thoughts on the MEANING of what you intentionally store away, and using Cross-Referencing (as a library does) will give you a speedier and more effective recall (retrieval).

Chunking is a useful organizational device for remembering lists and phonenumbers. For example, if you are presented with a telephone number, it is easier and more efficient to work with it if you "chunk" the digits into groups of two or three than if you try to remember them individually. For example: 476-3189 can be "chunked" as 476 (four seventy-six) and 3189 (thirty-one eighty-nine).

REMEMBER: The first and most important step is to reduce STRESS and increase AWARENESS.

(5) Five Techniques for Long-term Memory Enhancement

A. SQ 3R (Survey, Question, Read, Recite, Review)

Much of the new information we want to put into our long-term memory comes from reading. Your ability to remember what you read depends on how you read. The SQ3R technique comes from Chapter 4 of K.L. Higbee's Your Memory, How it Works, and How to Improve it". It includes:

a. Survey- Before you read, survey. Get an idea of what is coming up. Surveying gives you an overview and a framework

within which to place material as you learn it. This enhances your memory and speeds up your reading time. If it is a book, read the preface, table of contents, chapter headings, or the chapter summary. Look at the pictures or the graphs, before you read.

b. Question - Make up questions based on what you've leaned from the survey. If there are chapter headings or titles, these are good sources for developing questions. By doing this you will know what to look for when you are reading. Inserting questions before and within the material you're reading is a big help in learning and remembering the material. Developing questions maintains interest in what you're reading, fosters active involvement, and gives purpose and direction.

c. Read - Now it's time to read. It's important to point out that reading is the third step of SQ3R. One of the main problems people have in readingis that they tend to give equal importance to all of it. The problem is that they haven't taken the time to survey the material and know what's important.

d. Recite - Here we're talking about rehearsal. The idea is to reread the material, asking yourself questions and answering them. Actually in studying some material, you should spend the same amount of time reciting as reading.

e. Review - Survey again. Recite to yourself what the main points are. Organize the material in your mind. Relate things to each other.

B. The 5 W's and 1H (Who, What, When, Where, Why and How) method is more useful than SQ3R for fictional or dramatic material, since there is little opportunity for either "Survey" or "Question".

C. Mental Rehearsal and Repetition

These can be applied to many situations besides reading. For example, after learning the names of a new group by attentively hearing their names (Step 1: Attention/Awareness), and using each one's name in conversation (Step 2: Consolidation by Active Participation), you may still forget the names the next time you meet them. The remedy is to complete Step 3: Retrieval. Just use mental rehearsal, repeating the names several times over the next few days, to facilitate placement in long-term memory.

D. Multiple Cross-Referencing for Effective Retrieval of Information

When you go to the library for a certain book, you can look it up in several ways: under the author's name, the book title, or under subject matter (e.g., Travel, Health, etc.). This principle of Cross-Referencing applies to retrieving the information you want to get from your long-term memory. When you integrate new material into your memory by attaching it to as many meaningful "pegs" as possible, you will then have many avenues available when you want to retrieve (remember) the new material. For example, if you have trouble memorizing Mozart's birth year (1756), you could "peg" it both to another composer (e.g., he was born six years after Bach died in 1750) and to the American Revolution (e.g., Mozart was a young man of 20 in 1776). Then

you'll never forget Mozart's birth year.

E. Imagery: Using Your Imagination

Using your imagination to make vivid pictures in your head about the material you want to move into your long-term memory can be a very helpful tool. In general, the most effective images are:

1. Concrete rather than abstract,
2. Moving or action-packed rather than static or stationary,
3. Emotional rather than neutral, and
4. Unusual, bizarre, or humorous rather than ordinary or commonplace.

Let us apply these points to the Mozart example mentioned above to illustrate how the Imagery Process works. Create a mental picture of Mozart frantically scribbling the end of an opus entitled, in big letters, "1776 INDEPENDENCE CONCERTO", so he can finish before the 20 candles on his birthday cake blow out. On a shelf above him is a marble bust of BACH, enscribed with his death date, 1750, on the base. The quilled pen he is using has an unusually long 6 foot plume which keeps tickling the statue's nose as he writes down the ending notes. Just as he finishes in time, Bach's statue sneezes and blows out the candles before Mozart can get to them.

This image is concrete, emotional (the frantic hurry), full of movement and action, and the 6 foot plume and the statue's sneeze are both bizarre and humorous. This example has of course been exaggerated so that all four points can be included to show how one facilitates the flow of the material into long-

term memory. In actual practice one may read only one or two points to facilitate the flow.

(6) Adapting This 8 Week Program To Other Settings

Three options were discussed.

A. Senior and/or Retirement Centers

Using the 8 week format as presented in this paper, covering both short and long-term memory techniques, was recommended for those facilities (such as Senior and/or Retirement Centers) where workshops and classes are offered to a fairly healthy population. It was emphasized that pre-screening (in person or over the phone) was essential. Seniors experiencing severe depression or mental confusion should be referred to those health professionals and agencies equipped to deal with such serious problems.

B. Nursing Home Environments

For those long-term care facilities whose population is made up of older adults with a variety of limitations, a program which concentrates on the first three short term memory techniques (Self-Instruction, Tagging, and Controlling the Physical Environment) is recommended. These three techniques are helpful with problems such as keeping track of belongings, correct use of medications, and orientation in space and time (e.g., remembering meals, appointments, etc.).

C. Other Facilities

In between the extremes of A and B fall a variety of facilities and settings where the population might welcome an 8 session program, but staff and/or space limitations require a shortened

version of the memory workshop. Under these circumstances, it is recommended that the five long-term memory techniques be omitted. A solid five or six session program is sufficient to cover both the model of the memory process and practice of the five short-term memory techinques.

Two good resource books are recommended for paraprofessionals, professionals, and consumers as well. One is the Danielle Lapp book, "DON"T FORGET", available in paperback, which gives good examples and exercises for the practice of awareness, chunking, remembering names and faces, imagery, and general information on memory processes. The other is Bea Wooley's "FACTS AND FICION ABOUT MEMORY", which can be ordered form the Turner Geriatric Clinic, University of Michigan Hospitals. This includes a twenty item quiz which allows for an interesting presentation of information about memory processes and helps to dispel many of the common "negative" myths about aging.

It was encouraging to find so many A.S.A. member participants interested in staring memory enhancement programs in their own communities. We have found the Memory Enhancement workshops to be the most popular program at the Senior Health and Peer Counseling Center. These Workshops are easy to conduct and the participants have reported that they have gained much, including enhanced self-esteem.

HAND-OUT #1 (Pre-Measure)

MEMORY ENHANCEMENT WORKSHOP CHECK-LIST

	No Problem	Occasional Problem	Frequent Problem
1. My memory in general	_____	_____	_____
2. Names and Faces	_____	_____	_____
3. Where I put things, such as keys, glasses, etc.	_____	_____	_____
4. Things I have read	_____	_____	_____
5. Remembering what I was doing before an interruption	_____	_____	_____
6. Remembering why I went into a room, (for example, what I went to do or get)	_____	_____	_____
7. What people tell me	_____	_____	_____
8. Directions & Instructions	_____	_____	_____
9. Appointments to keep or errands I meant to do	_____	_____	_____
10. Phone Numbers (for example, having to re-check the number before I complete dialing)	_____	_____	_____

COMMENTS:

NAME_____ AGE_____ DATE_____

ADDRESS_____
STREET CITY ZIP

HAND-OUT #2 (Post Measure)

MEMORY ENHANCEMENT WORKSHOP CHECK-LIST

NAME:_____ AGE:_____ DATE:_____

	No Problem	Occasional Problem	Frequent Problem
1. My memory in general	_____	_____	_____
2. Names and Faces	_____	_____	_____
3. Where I put things such as keys, glasses, etc.	_____	_____	_____
4. Things I have read	_____	_____	_____
5. Remembering what I was doing before an interruption	_____	_____	_____
6. Remembering why I went into a room, (for example, what I went to do or get)	_____	_____	_____
7. What people tell me	_____	_____	_____
8. Directions & Instructions	_____	_____	_____
9. Appointments to keep, errands I meant to do	_____	_____	_____
10. Phone Numbers (for example having to re-check the number before I complete dialing).	_____	_____	_____

For purposes of scoring, the columns count as follows: (0) (1) (2)

The lowest possible score is (0), meaning that the respondent has NO PROBLEM IN ANY OF THE TEN AREAS. The highest possible score is (20), meaning that the respondent has indicated FREQUENT PROBLEMS IN ALL TEN AREAS. The respondent's TOTAL SCORE is the sum of their points over all ten items.

HAND-OUT #3

SUMMARY REPORT: MEMORY WORKSHOP #15 (Jan. 6, 1988-Feb. 24, 1988)
Submitted by: Genevieve Rogge Meyer, Ph.D.

Of the 12 clients who participated in this workshop, 10 (2 men and 8 women) responded on the evaluation form. The age range was 66 to 81 years, with a median age of 72 years. All reported gains.

Beginning with this group, a new form of evalution has been introduced--allowing for a BEFORE measure that can be compared with an AFTER score. These forms are given to participants at the start of the first session (see Handout #1) and, again, at the end of the workshop (see Handout #2). Since this allows for a Pre and Post score measure, the amount of improvement can be quantified; and, therefore, subjected to the Sign Test for Significance of Changes. Since the sample is small the Binomial Test provides the probability level. In this group, all 10 showed an improvement in total score and the resulting p level was significant at the .001 level.

The items that showed the most problems were NAMES & FACES, WHERE THINGS HAVE BEEN PUT, TELEPHONE NUMBERS, THINGS THEY HAVE READ, AND MEMORY IN GENERAL. These five items also showed the most improvement.

The two items that clients had the least difficulty with were numbers 7 and 8: REMEMBERING WHAT PEOPLE TELL ME, AND DIRECTIONS AND INSTRUCTIONS. While there was some improvement on those two

items, the amount was necessarily small since many clients indicated at the beginning that they had no problems in those areas.

The remaining three areas (items #5, #6, and #9) -- REMEMBERING WHAT THEY WERE DOING PRIOR TO AN INTERRUPTION, WHY THEY WENT INTO A ROOM, and REMEMBERING APPOINTMENTS AND ERRANDS--all fell in the middle. In other words, they were "mild" or "medium" problem areas to begin with and, therefore, only "mild" or "moderate" improvement was experienced by the end of the workshop.

HAND-OUT #4

READING LIST FOR MEMORY GROUP

Benson, Herbert — The Relaxation Response
Avon Books, New York, 1975

Benson, Herbert — Beyond the Relaxation Response
Times Books, New York, 1984

Cernak, Laird — Improving Your Memory
W.W. Norton & Co., New York 1975

Herold, Mort — You Can Have a Near Perfect Memory
Contemporary Books, Inc., Chicago, 1982

Higbee, Kenneth L. — Your Memory, How it Workd and How to Improve It
Prentice-Hall, Inc., 1977

Job, Eena — Fending Off Forgetfulness
University Queensland Press, 1985

Kane, R.L., Ouslander, J.G., and Abrass, I.B. — Essentials of Clinical Geriatrics
McGraw-Hill, Inc., 1984

Lapp, Danielle — Don't Forget
McGraw-Hill Book Company, 1987

Loftus, Elizabeth — Memory
Addison-wesley Publ. Co., Menlo Park, CA, 1980

Laird, Donald and Eleanor — Techniques for Efficient Remembering
McGraw-Hill, New York, 1960

Rowan, Roy — The Filing System Inside Your Head
The Reader's Digest, Sept. 1979(condensed from Fortune)

Selye, Hans — Stress Without Distress
Signet Books, New York, 1974

West, Robin — Memory Fitness Over 40
Triad Publ., 1985